CLAIMS

1. An EL device comprising:

(a) an EL material;

(b) a interconnect metal contacting said EL material;

(c) A true-ohmic injection contact contacting said EL material and said interconnect metal; and

(d) a hole injection barrier contact which contacts said EL material.

2. The EL device of claim 1 wherein said EL device is fabricated by printing said EL material and said true-ohmic injection contact and said interconnect metal and said hole injection barrier contact in pattern and sequence required to produce cooperative elements of said EL device.

3. The EL device of claim 2 wherein:

(a) said EL material is first printed upon said hole injection barrier contact;

(b) said true-ohmic injection contact is next printed upon said EL material; and

(c) said interconnect metal is next printed upon said EL material and said true ohmic injection contact.

4. The EL device of claim 1 further comprising polymer encapsulating material which encapsulates said EL material and said interconnect metal and said true-ohmic injection contact.

5. The EL device of claim 1 wherein said EL material and said interconnect metal and said true-ohmic injector contact are formed into fibers and said fibers organized in a warp and a woof of a weaving loom and are woven thereby forming a weave to fabricate said device.

6. The EL device of claim 5 wherein said weave is affixed to a transparent

substrate.

7. The EL device of claim 1 wherein said true-ohmic contact metal comprises Al_2Li_3.

8. The EL device of claim 1 wherein said true-ohmic contact metal comprises $CuCa_2$.

9. The EL device of claim 1 wherein said EL material is organic.

10. A method for fabricating an EL device comprising the steps of:

(a) providing an EL material;

(b) contacting said EL material with an interconnect metal;

(c) contacting said EL material and said interconnect metal with a true-ohmic injection contact; and

(d) contacting said EL material with a hole injection barrier contact.

11. The method of claim 10 wherein said EL device is fabricated by printing in pattern and in sequence required to produce cooperative elements of said EL device.

12. The method of claim 11 comprising the additional steps of:

(a) first depositing said EL material upon said hole injection barrier contact;

(b) next printing said true-ohmic injection contact upon said EL material; and

(c) next printing said interconnect metal upon said EL material and said true ohmic injection contact.

13. The method of claim 10 comprising the additional step encapsulating said EL material and said interconnect metal and said true-ohmic injection contact within an oxygen barrier polymer material.

14. The method of claim 11 comprising the additional step of printing with an ink jet printer.

15. The method of claim 11 comprising the additional step of printing within an oxygen free environment.

16. The method of claim 10 comprising the additional steps of:

(a) forming said EL material and said interconnect metal and said true-ohmic injector contact into fibers;

(b) organizing said fibers in a warp and a woof of a weaving loom; and

(c) weaving said fibers with said loom thereby forming said EL device.

17. A OMESFET comprising:

(a) a substrate;

(b) an organic semiconductor contacting said substrate;

(c) a first true ohmic contact metal contacting said semiconductor and at a first edge of said semiconductor;

(d) a second true ohmic contact metal contacting said semiconductor at a second edge of said semiconductor opposite said first edge; and

(e) a high barrier surround gate contacting said semiconductor between said first true-ohmic contact metal and said second true-ohmic contact metal.

18. The OMESFET of claim 17 further comprising:

(a) a source interconnect metal contacting said first true-ohmic contact metal;

(b) a drain interconnect metal contacting said second true-ohmic contact metal; and

(c) a gate interconnect metal contacting said semiconductor and said high barrier surround gate.

19. The OMESFET of claim 17 wherein said high barrier surround gate is equidistant between said first true-ohmic contact metal and said second true ohmic contact metal.

20. The OMESFET of claim 17 wherein said is high barrier surround gate is spaced 3000 nm or less from said first true ohmic contact metal.

21. The OMESFET of claim 17 wherein a first portion of said OMESFET is formed by depositing upon said substrate said semiconductor and subsequently printing said first true-ohmic contact metal and said second true-ohmic contact metal and said high barrier surround gate in pattern and sequence required to produce cooperative elements of said OMESFET.

22 The OMESFET of claim 21 wherein said source interconnect metal and said gate interconnect metal and said drain interconnect metal are subsequently printed upon said first portion forming a second portion of said OMESFET.

23. The OMESFET of claim 17 wherein said semiconductor and said first true-ohmic contact metal and said second true ohmic contact metal and said high barrier surround gate and said source interconnect metal and said gate interconnect metal and said drain interconnect metal are formed into fibers and said fibers are organized in a warp and a woof of a weaving loom and are woven thereby forming a weave to fabricate said OMESFET.

24. The OMESFET of claim 23 wherein said weave is subsequently attached to said substrate.

25. The OMESFET of claim 23 wherein said first and said second portions are encapsulated to all components of said OMESFET from oxygen.

26. A method for fabricating a OMESFET comprising:

(a) providing a substrate;

(b) affixing a semiconductor to said substrate;

(c) affixing a first true ohmic contact metal to a first edge of said semiconductor;

(d) affixing a second true ohmic contact to a second edge of said

semiconductor and opposite said first edge; and

(e) affixing a high barrier surround gate to said semiconductor between said first true-ohmic contact metal and said second true-ohmic contact metal.

27. The method of claim 26 further comprising the steps of:

(a) contacting said first true-ohmic contact metal with a source interconnect metal;

(b) contacting said second true-ohmic contact metal with a drain interconnect metal; and

(c) contacting said semiconductor and said high barrier surround gate with a gate interconnect metal.

28. The method of claim 26 wherein said is high barrier surround gate is spaced 3000 nm or less from said first true ohmic contact metal.

29. The method of claim 26 comprising the additional step of fabricating a first portion of said OMESFET by depositing upon said substrate said semiconductor and said first true-ohmic contact metal and said second true-ohmic contact metal and said high barrier surround gate in pattern and sequence required to produce cooperative elements of said OMESFET.

30. The method of claim 29 comprising the additional step of fabricating a second portion of said OMESFET by printing said source interconnect metal and said gate interconnect metal and said drain interconnect metal upon said first portion of said OMESFET in pattern and sequence required to produce cooperative elements of said OMESFET.

31. The method of claim 26 comprising the additional steps of:

(a) forming said semiconductor and said first true-ohmic contact metal and said second true ohmic contact metal and said high barrier surround gate and said source interconnect metal and said gate interconnect metal and said drain interconnect metal into fibers;

(b) organizing said fibers in a warp and a woof of a weaving loom; and

(c) weaving said fibers with said loom thereby forming a weave to fabricate said OMESFET.

32. The method of claim 31 comprising the additional step of affixing said weave to said substrate.

33. The method of claim 26 comprising the additional step of encapsulating all components of said OMESFET to exclude oxygen.

34. A video display comprising an EL device and integrally fabricated address and logic devices for controlling said EL device, wherein said EL device comprises:

(a) an EL material;

(b) a interconnect metal contacting said EL material;

(c) A true-ohmic injection contact contacting said EL material and said interconnect metal; and

(d) a hole injection barrier contact which contacts said EL material.

35. The display of claim 34 wherein said EL device comprises at least one OMESFET comprising:

(a) a substrate;

(b) an organic semiconductor contacting said substrate;

(c) a first true ohmic contact metal contacting said semiconductor and at a first edge of said semiconductor;

(d) a second true ohmic contact metal contacting said semiconductor at a second edge of said semiconductor opposite said first edge;

(e) a high barrier surround gate contacting said semiconductor between said first true-ohmic contact metal and said second true-ohmic contact metal;

(f) a source interconnect metal contacting said first true-ohmic contact metal;

(g) a drain interconnect metal contacting said second true-ohmic contact metal; and

(h) a gate interconnect metal contacting said semiconductor and said

high barrier surround gate.

36. The display of claim 34 further comprising:

(a) an optically transparent substrate; and wherein

(b) said display is fabricated by printing semiconductor elements of said display and insulating elements of said display and metal conducting elements of said display upon said substrate in pattern and sequence required to produce cooperative elements of said display.

37. The display of claim 34 wherein:

(a) semiconductor elements of said display are formed from semiconductor fibers, and insulating elements of said display are formed from insulating fibers, and metal conducting elements of said display are formed from conducting fibers;

(b) said semiconducting fibers and said conducting fibers and said insulating fibers are organized in a warp and a woof of a weaving loom; and

(c) said semiconducting fibers and said conducting fibers and said insulating fibers are woven in said loom to produce said video display.

38. The display of claim 35 wherein said EL device comprises three pairs of red, blue and green emitting OMESFETs.

39. A method for fabricating a video display comprising an EL device and integrally fabricated address and logic devices for controlling said EL device, the method comprising the steps of:

(a) providing an organic EL material;

(b) interconnecting a metal contacting said EL material;

(c) contacting said EL material and said interconnect metal with a true-ohmic injection contact; and

(d) contacting said EL material with a hole injection barrier.

40. The method of claim 39 wherein said EL device comprises at least one OMESFET comprising:

(a) a substrate;

(b) an organic semiconductor contacting said substrate;

(c) a first true ohmic contact metal contacting said semiconductor and at a first edge of said semiconductor;

(d) a second true ohmic contact metal contacting said semiconductor at a second edge of said semiconductor opposite said first edge;

(e) a high barrier surround gate contacting said semiconductor between said first true-ohmic contact metal and said second true-ohmic contact metal;

(f) a source interconnect metal contacting said first true-ohmic contact metal;

(g) a drain interconnect metal contacting said second true-ohmic contact metal; and

(h) a gate interconnect metal contacting said semiconductor and said high barrier surround gate.

41. The method of claim 39 further comprising the steps of:

(a) providing an optically transparent substrate;

(b) depositing said organic EL material upon said substrate; and wherein

(c) fabricating said display by printing insulating elements of said display and metal conducting elements of said display upon said substrate in pattern and sequence required to produce cooperative elements of said display.

42. The method of claim 39 comprising the additional steps of:

(a) forming semiconductor elements of said display from semiconductor fibers, and forming insulating elements of said display from insulating fibers, and forming metal conducting elements of said display from conducting fibers;

(b) organizing said semiconducting fibers and said conducting fibers and said insulating fibers in a warp and a woof of a weaving loom; and

(c) weaving said semiconducting fibers and said conducting fibers and said insulating fibers in said loom to produce said video display.

43. The method of claim 40 wherein said EL device comprises three pairs of

red, blue and green emitting OMESFETs.

44. The OMESFET of claim 17 wherein said high barrier surround gate is positioned at a distance from said first true-ohmic contact metal to tune carrier balance.

45. The method of claim 26 comprising the additional step of tuning carrier balance by varying distance between said high barrier surround gate and said first true-ohmic contact metal.